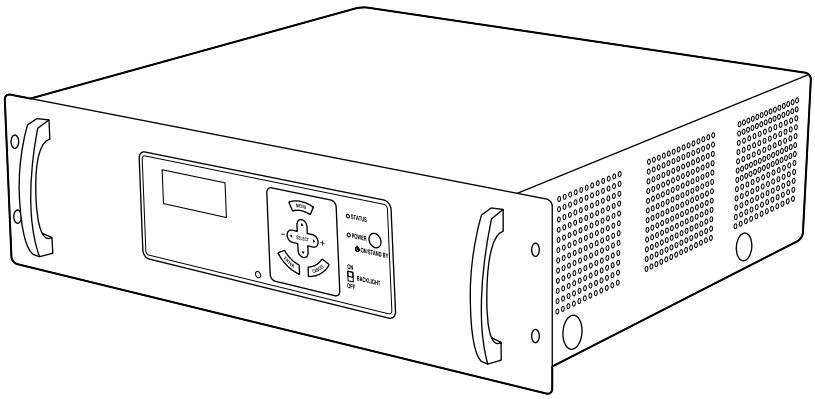
Multimedia Switcher for DLP Cinema® Projector

NEC

# MM2000

## User's Manual




NEC Viewtechnology, Ltd.

# Important Information

**Precautions**

Please read this manual carefully before using your MM2000 Switcher and keep the manual handy for future reference.
Your serial number is located on the top of your MM2000 Switcher. Record it here:

| CAUTION |
| --- |
| To turn off main power, be sure to remove the plug from power outlet.<br>The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible. |

| CAUTION |
| --- |
| TO PREVENT SHOCK, DO NOT OPEN THE CABINET.<br>NO USER-SERVICEABLE PARTS INSIDE.<br>REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. |

This symbol warns the user that uninsulated voltage within the unit may be sufficient to cause electrical shock. Therefore, it is dangerous to make any kind of contact with any part inside of the unit.

This symbol alerts the user that important information concerning the operation and maintenance of this unit has been provided. The information should be read carefully to avoid problems.

**WARNING**

TO PREVENT FIRE OR SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.
DO NOT USE THIS UNIT'S GROUNDED PLUG WITH AN EXTENSION CORD OR IN AN OUTLET UNLESS ALL THREE PRONGS CAN BE FULLY INSERTED.
DO NOT OPEN THE CABINET. THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. ALL SERVICING MUST BE DONE BY QUALIFIED SERVICE PERSONNEL.

**DOC compliance Notice**

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

**Machine Noise Information Regulation - 3. GPSGV,**

The highest sound pressure level is less than 70 dB (A) in accordance with EN ISO 7779.

**AC power cable for UK**

In UK, a BS approved power cable with moulded plug has a Black (five Amps) fuse installed for use with this equipment. If a power cable is not supplied with this equipment please contact your supplier.

- DLP, DLP Cinema and their respective logos are trademarks or registered trademarks of Texas Instruments.
- HQV logo is registered in the U.S. and Japan as a trademark of Silicon Optix Inc.
- Windows is registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries.
- Other product and company names mentioned in this user's manual may be the trademarks of their respective holders.

**WARNING**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

**CAUTION**

- In order to reduce any interference with radio and television reception use a signal cable with ferrite core attached. Use of signal cables without a ferrite core attached may cause interference with radio and television reception.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference to radio communications.
  Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Important Safeguards

These safety instructions are to ensure the long life of your Switcher and to prevent fire and shock. Please read them carefully and heed all warnings.

**⚠ Installation**

- Do not place your switcher in direct sunlight, near heaters or heat radiating appliances.
- Exposure to direct sunlight, smoke or steam can harm internal components.
- Handle your switcher carefully. Dropping or jarring can damage internal components.
- Do not place heavy objects on top of the switcher.

**⚠ Power Supply ⚠**

- The switcher is designed to operate on a power supply of. Ensure that your power supply fits this requirement before attempting to use your switcher.
- Handle the power cable carefully and avoid excessive bending. A damaged cord can cause electric shock or fire.
- If the switcher is not to be used for an extended period of time, disconnect the plug from the power outlet.
- Do not touch the power plug with wet hand. Doing so can cause electrical shock or fire.
- Do not touch the power plug during a thunder storm. Doing so can cause electrical shock or fire.

**Cleaning**

- Unplug the switcher before cleaning.
- Clean the cabinet periodically with a damp cloth. If heavily soiled, use a mild detergent. Never use strong detergents or solvents such as alcohol or thinner.

**⚠ CAUTION ⚠**

- When switching off the Main Power switch, set the Switcher to the standby mode beforehand. Doing so can cause damage to the Switcher.
- Do not try to touch the ventilation outlets as they can become heated while the switcher is turned on.
- Do not eject a PC card or LAN card while its data is being accessed. Doing so can damage your PC card or LAN card.
- Please do not handle the parts on the interface board with your bare hands. Doing so may cause damage due to electrostatic discharge.
- Do not use the handle of the interface board to carry the Switcher. Doing so may cause injury or damage to the Switcher.

**⚠ Fire and Shock Precautions**

- Ensure that there is sufficient ventilation and that vents are unobstructed to prevent the build-up of heat inside your switcher. Allow at least 3 inches (10 cm) of space between your switcher and a wall.
- Prevent foreign objects such as paper clips and bits of paper from falling into your switcher. Do not attempt to retrieve any objects that might fall into your switcher. Do not insert any metal objects such as a wire or screwdriver into your switcher. If something should fall into your switcher, disconnect it immediately and have the object removed by a qualified service personnel.
- Do not place any liquids on top of your switcher.
- When using a LAN cable:
  For safety, do not connect to the connector for peripheral device wiring that might have excessive Voltage.
- Do not put the Switcher on its side when the power is turned on.

**Disposing of your used product**

EU-wide legislation as implemented in each Member State requires that used electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste.

This includes projectors and their electrical accessories or lamps. When you dispose of such products, please follow the guidance of your local authority and/or ask the shop where you purchased the product.

After collecting the used products, they are reused and recycled in a proper way. This effort will help us reduce the wastes as well as the negative impact to the human health and the environment at the minimum level.

The mark on the electrical and electronic products only applies to the current European Union Member States.

**For questions relating to unclear points or repairs**

Contact your dealer or the following support branches for questions relating to unclear points, malfunctions and repairs of the product.

**In Europe**

NEC Europe, Ltd. / European Technical Centre
Address: Unit G, Stafford Park 12, Telford TF3 3BJ, U.K.
Telephone: +44 1952 237000
Fax Line: +44 1952 237006

**In North America**

NEC Corporation of America
Digital Cinema Division
Address: 4111 West Alameda Avenue Suite 412 Burbank, CA 91505
Telephone: 818 557 2500
*If the above line is busy, please dial as below;
Telephone: 866 632 6431

## Informations importantes

### Précautions

Veuillez lire ce manuel avec attention avant d'utiliser votre commutateur MM2000 et gardez ce manuel à portée de main afin de pouvoir y recourir facilement.
Votre numéro de série est situé sur le fond de votre commutateur MM2000. Reportez-le ici:

**ATTENTION**

Pour couper complètement l'alimentation, retirez la prise du secteur.
La prise du secteur doit être accessible et installée le plus près possible de l'appareil.

**ATTENTION**

POUR ÉVITER TOUT CHOC ÉLECTRIQUE, N'OUVREZ PAS LE BOÎTIER. LES PIÈCES INTERNES NE SONT PAS RÉPARABLES PAR L'UTILISATEUR. POUR TOUTE RÉPARATION, ADRESSEZ-VOUS À UN RÉPARATEUR AGRÉE.

Ce symbole avertit l'utilisateur que le contact avec certaines parties non isolées à l'intérieur de l'appareil risque de causer une électrocution. Il est donc dangereux de toucher quoi que ce soit à l'intérieur de l'appareil.

Ce symbole avertit l'utilisateur que d'importantes informations sont fournies sur le fonctionnement ou l'entretien de cet appareil. Ces informations doivent être lues attentivement pour éviter tout problème.

**AVERTISSEMENT**

AFIN DE PREVENIR TOUT RISQUE D'INCENDIE OU DE CHOC ELECTRIQUE, N'EXPOSEZ PAS CET APPAREIL A LA PLUIE OU À L'HUMIDITÉ. N'UTILISEZ PAS LA PRISE DE TERRE DE L'APPAREIL AVEC UNE RALLONGE OU UNE AUTRE PRISE, A MOINS QUE LES TROIS BROCHES PUISSENT ETRE COMPLETEMENT INSÉRÉES. N'OUVREZ PAS LE BOÎTIER. A L'INTÉRIEUR SE TROUVENT DES COMPOSANTS À HAUTE TENSION. TOUTE RÉPARATION DOIT ÊTRE FAITE PAR DU PERSONNEL AGRÉE.

**DOC avis de conformité**

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le Matériel D'interférence du Canada.

**Règlement De l'Information De Bruit De Machine - 3. GPSGV,**

le niveau le plus élevé de pression acoustique est conforme moins de 70 dB (A) à EN ISO 7779.

**Cordon d'alimentation CA pour le RU**

Au RU, un cordon d'alimentation approuvé par BS avec prise moulée est équipé d'un fusible Noir (5 A) pour l'utilisation avec cet équipement.
Si un cordon d'alimentation n'est pas fourni avec cet équipement, veuillez contacter votre revendeur.

- DLP, DLP Cinema et leurs logos respectifs constituent des marques commerciales ou des marques commerciales déposées de Texas Instruments.
- Windows est une marque commerciale ou une marque commerciale déposée de Microsoft Corporation aux Etats-Unis et/ou dans d'autres pays.
- Les autres noms de produits et de sociétés mentionnés dans ce mode d'emploi peuvent être des marques commerciales de leur propriétaire respectif.

## Mesures de sécurité importantes

Ces instructions de sécurité garantissent la longévité de votre commutateur et préviennent les risques d'incendie et de décharge électrique. Lisez-les et respectez les conseils

### ⚠ Installation

- Ne placez pas votre projecteur en plein soleil, à côté d'appareils de chauffage ou d'appareils dégageant de la chaleur.
- L'exposition en plein soleil, la fumée ou la vapeur peuvent endommager des composants internes.
- Manipulez votre commutateur avec précaution. Une chute ou un choc peuvent endommager des composants internes.
- Ne placez pas d'objet lourd sur le commutateur.

### ⚠ Alimentation ⚠

- Ce commutateur est conçu pour fonctionner avec une alimentation électrique de. Assurez-vous que votre alimentation correspond à ces critères avant d'essayer d'utiliser votre commutateur.
- Manipulez le câble d'alimentation avec précaution et évitez de l'entortiller. Tout câble endommagé peut provoquer une électrocution ou un incendie.
- Si le commutateur ne doit pas étre utilisé pendant longtemps, débranchez la prise de la source d'alimentation.
- Ne touchez pas la prise d'alimentation avec les mains mouillées. Ceci peut causer une électrocution ou un incendie.
- Ne touchez pas la prise d'alimentation pendant les orages. Ceci peut causer une électrocution ou un incendie.

### Nettoyage

- Débranchez le projecteur avant de procéder au nettoyage.
- Nettoyez régulièrement le coffret avec un chiffon humide. Si celuici est très sale, utilisez un détergent doux. N'utilisez jamais de détergents puissants, de l'alcool ou d'autres solvants.

### ⚠ ATTENTION ⚠

- Avant d'éteindre l'interrupteur principal d'alimentation, mettre le commutateur en position de veille. Sinon, cela pourrait endommager le commutateur.
- N'essayez pas de toucher les orifices de sortie d'aération ; ceux-ci peuvent être très chauds lorsque le commutateur est en marche.
- Ne pas éjecter la carte PC ou la carte LAN pendant l'accès à ses données. Ceci risque d'endommager la carte PC ou la carte LAN.
- Veuillez ne pas manipuler les parties sur le panneau d'interface avec vos mains nues. Faire ainsi peut endommager dû à la décharge électrostatique.
- N'utilisez pas la poignée du panneau d'interface pour porter le commutateur. Cela pourrait entraîner des blessures ou endommager le commutateur.

### ⚠ Précautions contre les risques d'incendie et d'électrocution

- Assurez-vous que la ventilation est suffisante et que les trous d'aération ne sont pas obstrués afin d'éviter tout échauffement à l'intérieur de votre commutateur. Laissez au-moins 10 cm d'espace entre le commutateur et le mur.
- Evitez de faire tomber dans le commutateur des objets étrangers comme des trombones ou des morceaux de papier. N'essayez pas de récupérer tout objet tombé à l'intérieur de votre commutateur. N'insérez pas d'objets métalliques comme du fil de fer ou un tournevis dans votre commutateur. Si quelque chose est tombée à l'intérieur de votre commutateur, débranchez-le immédiatement et faites retirer l'objet par une personne qualifiée de la maintenance.
- Ne placez aucun liquide sur votre commutateur.
- Lors de l'utilisation d'un câble LAN :
  Pour votre sécurité, ne raccordez pas au connecteur pour périphérique externe de câble pouvant avoir une tension excessive.
- Ne placez pas le commutateur sur le côté lorsqu'il est allumé.

### Mise au rebut du produit usagé

La législation européenne, appliquée dans tous les Etats membres, exige que les produits électriques et électroniques portant la marque (à gauche) doivent être mis au rebut séparément des autres ordures ménagères. Ceci inclus les projecteurs et leurs accessoires électriques ou lampes. Lorsque vous mettez au rebut ces produits, veuillez suivre les recommandations des autorités locales et/ou demandez conseil au magasin qui vous a vendu le produit.
Une fois ces produits mis au rebut, ils sont recycles et de manière appropriée. Cet effort nous aidera à réduire les déchets et à maintenir au niveau minimum leurs conséquences négatives sur la santé humaine et sur l'environnement. La marque figurant sur les produits électriques et électroniques ne s'applique qu'aux Etats members actuels de l'Union Européenne.

### Si vous avez des questions concernant des points peu clairs ou des réparations

Contacter votre distributeur ou les branches d'assistance suivantes si vous avez des questions concernant des points à éclaircir, des défauts et des réparations du produit.

### En Europe

NEC Europe, Ltd. / European Technical Centre
Adresse : Unit G, Stafford Park 12, Telford TF3 3BJ, U.K.
Téléphone : +44 1952 237000
Fax : +44 1952 237006

### En Amérique du Nord

NEC Corporation of America
Division Cinéma Numérique
Adresse : 4111 West Alameda Avenue Suite 412 Burbank, CA 91505
Téléphone : 818 557 2500
*Si la ligne ci-dessus est occupée, essayer le numéro suivant ;
Téléphone : 866 632 6431

## Wichtige Informationen

### Vorsichtsmaßnahmen

Lesen Sie sich dieses Handbuch bitte sorgfältig durch, bevor Sie den MM2000 Switcher benutzen, und bewahren Sie das Handbuch in greifbarer Nähe als spätere Referenz auf.
Die Seriennummer Ihres Gerätes finden Sie auf der Unterseite des MM2000. Notieren Sie hier:

**VORSICHT**

Zum Ausschalten der Hauptspannung müssen Sie unbedingt den Netzstecker von der Netzsteckdose abziehen.
Die Netzsteckdose sollte so nahe wie möglich am Gerät installiert werden und jederzeit leicht zugänglich sein.

**VORSICHT**

UM EINEN ELEKTRISCHEN SCHLAG ZU VERMEIDEN, SOLLTEN SIE DAS GEHÄUSE NICHT ÖFFNEN.
IM INNEREN DES GERÄTES BEFINDEN SICH KEINE BAUTEILE, DIE VOM BENUTZER SELBST GEWARTET WERDEN KÖNNTEN. ÜBERLASSEN SIE SÄMTLICHE SERVICEARBEITEN QUALIFIZIERTEM SERVICEPERSONAL.

Dieses Symbol warnt den Benutzer vor unisolierter Spannung im Inneren des Gerätes, die einen elektrischen Schlag verursachen kann. Daher ist der Kontakt mit sämtlichen inneren Geräte-Bauteilen gefährlich.

Dieses Symbol macht den enutzer darauf aufmerksam, dass wichtige den Betrieb und die Wartung betreffende Informationen beigefügt sind.
Diese Informationen sollten zur Vermeidung von Störungen unbedingt sorgfältig gelesen und beachtet werden.

**WARNUNG**

UM EINE BRANDGEFAHR BZW. DIE GEFAHR EINES ELEKTRISCHEN SCHLAGES ZU VERMEIDEN, DARF DIESES GERÄT WEDER REGEN NOCH FEUCHTIGKEIT AUSGESETZT WERDEN. VERWENDEN SIE NICHT DEN GEERDETEN STECKER DIESER EINHEIT MIT EINEM VERLÄNGERUNGSKABEL ODER EINER STECKDOSE, IN DIE NICHT ALLE DREI STIFTE VOLLSTÄNDIG EINGESTECKT WERDEN KÖNNEN. ÖFFNEN SIE NICHT DAS GEHÄUSE. IM INNEREN BEFINDEN SICH HOCHSPANNUNGSFÜHRENDE BAUTEILE. ÜBERLASSEN SIE SÄMTLICHE SERVICEARBEITEN QUALIFIZIERTEM SERVICEPERSONAL.

**Maschinenlärminformations-Verordnung - 3. GPSGV,**

Der höchste Schalldruckpegel beträgt 70 dB(A) oder weniger gemäß EN ISO 7779.

**Wechselstrom-Netzkabel für Großbritannien**

In GB muss mit diesem Gerät ein zugelassenes Netzkabel mit einem angegossenen Stecker mit installierter schwarzer Sicherung (fünf A) verwendet werden. Wenn dem Gerät ein Netzkabel nicht beiliegt, wenden Sie sich bitte an Ihren Händler.


- DLP, DLP Cinema und ihre entsprechenden Logos sind Warenzeichen oder eingetragene Warenzeichen von Texas Instruments.
- Windows ist ein eingetragenes Warenzeichen oder Warenzeichen der Microsoft Corporation in den USA und/oder anderen Ländern.
- Andere Produkt- oder Firmennamen, die in dieser Bedienungsanleitung erwähnt werden, können Warenzeichen ihrer jeweiligen Eigentümer sein.


## Wichtige Sicherheitshinweise

Diese Sicherheitshinweise sollen eine lange Lebensdauer Ihr Switcher sicherstellen und vor Feuer und elektrischen Schlägen schützen. Lesen Sie diese Hinweise sorgfältig durch und beachten Sie alle Warnungen.

**⚠ Installation**

- Stellen Sie den Switcher weder in direktes Sonnenlicht noch in die Nähe einer Heizung oder sonstiger Hitze abstrahlender Einrichtungen.
- Wenn das Gerät direktem Sonnenlicht, Rauch oder Dampf ausgesetzt wird, können interne Komponenten beschädigt werden.
- Behandeln Sie Ihren Switcher vorsichtig. Fallenlassen oder starkes Schütteln kann interne Komponenten beschädigen.
- Legen Sie keine schweren Gegenstände auf den Switcher.

**⚠ Spannungsversorgung ⚠**

- Der Switcher wurde für eine Netzspannung von. Stellen Sie sicher, dass die vorhandene Spannungsversorgung diesen Vorgaben entspricht, bevor Sie versuchen, Ihren Switcher zu betreiben.
- Behandeln Sie das Netzkabel vorsichtig und vermeiden Sie Knicke. Ein beschädigtes Netzkabel kann elektrische Schläge oder einen Brand verursachen.
- Wenn der Switcher über eine längere Zeit nicht benutzt wird, ziehen Sie den Stecker aus der Netzsteckdose.
- Berühren Sie nicht den Netzstecker mit feuchten Händen. Die Nichtbeachtung dessen könnte einen Stromschlag oder einen Brand zur Folge haben.
- Berühren Sie den Netzstecker nicht während eines Gewitters. Die Nichtbeachtung dessen könnte einen Stromschlag oder einen Brand zur Folge haben.

**Reinigung**

- Trennen Sie den Switcher vor der Reinigung von der Netzsteckdose ab.
- Reinigen Sie das Gehäuse regelmäßig mit einem feuchten Tuch. Bei starker Verschmutzung verwenden Sie ein mildes Reinigungsmittel. Reinigen Sie das Gerät niemals mit starken Reinigungs- oder Lösungsmitteln wie z.B. Alkohol oder Verdönner.

**⚠ ACHTUNG ⚠**

- Setzen Sie den Schalter in den Standby-Modus, bevor Sie den Hauptnetzschalter ausschalten. Andernfalls kann der Schalter beschädigt werden.
- Versuchen Sie nicht, die Lüftungsöffnungen zu berühren, da diese heiß werden, während der Switcher eingeschaltet ist.
- Lassen Sie die PC-Karte oder LAN-Karte nicht auswerfen, während auf ihre Daten zugegriffen wird. Dies kann zu einer Beschädigung der PC-Karte oder LAN-Karte führen.
- Bitte fassen Sie nicht die Teile auf dem Schnittstelle Brett mit Ihren bloßen Händen an. So tun kann die Beschädigung wegen der elektrostatischen Entladung verursachen.
- Verwenden Sie nicht den Griff am Schnittstellen-Board, um den Schalter zu tragen. Dies könnte Verletzungen verursachen oder den Schalter beschädigen.

**⚠ Vorkehrungen gegen Feuer und elektrische Schläge**

- Stellen Sie ausreichende Belüftung sicher und dass die Belüftungsöffnungen frei bleiben, damit sich innerhalb des Switchers kein Hitzestau bilden kann. Lassen Sie mindestens 10 cm Abstand zwischen Ihrem Switcher und der Wand.
- Vermeiden Sie, dass fremde Objekte wie Büroklammern und Papierstückchen in den Switcher fallen. Versuchen Sie nicht, in den Switcher gefallene Objekte zu entfernen. Stecken Sie keine Metallgegenstände wie Schraubendreher oder Drähte in Ihren Switcher. Wenn etwas in den Switcher fiel, ziehen Sie sofort den Netzstecker heraus und lassen Sie den Gegenstand durch qualifiziertes Servicepersonal entfernen.
- Stellen Sie keine Gefäße mit Flüssigkeiten auf Ihren Switcher ab.
- Wenn ein LAN-Kabel verwendet wird:
  Schließen Sie es aus Sicherheitsgründen nicht an den Anschluss der Peripheriegeräte-Verbindung an, das sie eine zu hohe Spannung führen könnte.
- Stellen Sie den Schalter bei eingeschaltetem Strom nicht vertikal auf.

**Entsorgung Ihres benutzten Gerätes**

Die EU-weite Gesetzgebung, wie sie in jedem einzelnen Mitgliedstaat gilt, bestimmt, dass benutzte
elektrische und elektronische Geräte mit dieser Markierung (links) getrennt vom normalen Haushaltsabfall entsorgt werden müssen. Dies schließt Projektoren und deren elektrisches Zubehör oder ihre Lampen mit ein. Folgen Sie beim Entsorgen eines solchen Gerätes bitte den Anweisungen Ihrer örtliche Behörde und/oder konsultieren Sie den Händler, bei dem Sie das Gerät erworben haben.
Nach der Sammlung benutzter Geräte werden diese erneut verwendet und entsprechend den Umweltbestimmungen recycelt. Das trägt dazu bei, die Abfallmenge zu reduzieren sowie die negativen Auswirkungen auf die menschliche Gesundheit und die Umwelt möglichst gering zu halten. Die Markierung auf elektrischen und elektronischen Geräten gilt nur für die gegenwärtigen Mitgliedsstaaten der Europäischen Union.

**Bei Fragen, die sich aus unklaren Punkten oder Reparaturarbeiten ergeben**

Bei Fragen, die sich aus unklaren Punkten, Fehlfunktionen oder Reparaturarbeiten am Produkt ergeben, wenden Sie sich an Ihren Händler oder an eine der folgenden Niederlassungen.

**In Europa**

NEC Europe, Ltd. / European Technical Centre
Addresse: Unit G, Stafford Park 12, Telford TF3 3BJ, U.K.
Telefon: +44 1952 237000
Fax-Nummer: +44 1952 237006

**In Nordamerika**

NEC Corporation of America
Digital-Cinema-Abteilung
Adresse: 4111 West Alameda Avenue Suite 412 Burbank, CA 91505
Telefon: 818 557 2500
*Falls die oben aufgeführte Leitung besetzt sein sollte, wählen Sie bitte die folgende Nummer;
Telefon: 866 632 6431

(MEMO)

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# 1. Introduction

## 1-1. Features

• 3D Motion Adaptive I/P Conversion Supports a Multi-directional Filter for HDTV

Differing from the conventional 3D Motion Adaptive interpolation method, this provides optimum interpolation even in oblique directions of the moving image. Therefore, image quality performance of image contents are drawn out to the maximum limit when converting to progressive signals.

Because from the beginning there are 3:2 and 2:2 pull down signals for the image contents, to be compatible to animation formats, bad editing signals and super-imposed scroll signals, there is no feeling of incongruity such as in scene changes. This makes it possible to enjoy the contents more.

• Full 10-bit Image Processing Circuit

There is color 10-bit image processing circuits from the slot interface to the output unit. When inputting signals from the optional SDI interface slot, there is complete 10-bit processing up to the interface unit of the projector. This makes it possible to attain images with high-bit depth.

• Per-pixel Motion Adaptive Noise Reduction

When the SDTV signal is input, it is possible to cancel out noise without blurring the contours of the image by detecting the noise component in the input image on one pixel basis. The “residual images” in which images flow behind the moving objects will not occur by processing to correspond to the motions in the input image.

• Equipped with 4 slots which can accommodate 4 types of interface boards

This Switcher is equipped with 4 slots which permit the insertion of the following 4 types of optional interface boards. Multiple interface boards of the same type can also be inserted.

Connectors of the Various Boards

MM-VIDEO* ..... CVBS input connector (BNC), S-Video input connector (BNC 2 conductors), Component video input connector (BNC 3 conductors)

MM-RGB* ..... RGB input connector (BNC 5 conductors)

MM-SDI ..... SDI input connector (BNC)x2, monitor output connector (BNC)

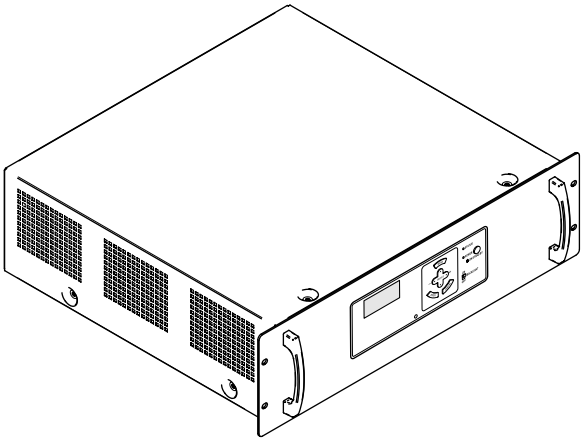
MM-DVI ..... DVI-D input connector (DVI-D 24 pin)

* When shipped from the factory this Switcher is installed with one MM-VIDEO board and one MM-RGB board.

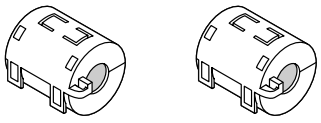
# 1-2. What's in the Box?

The accessory contents are as follows:

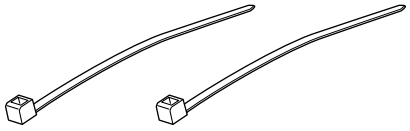
• Multimedia Switcher (MM2000)



• Ferrite clamp core
(for Power cable / RGB cables) x2



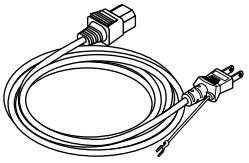
• Band x2



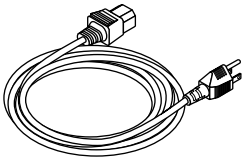
• User's Manual

(For Japan)

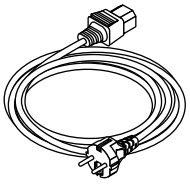
• Power cable x3



• Power cable for Japan
(AC100V)



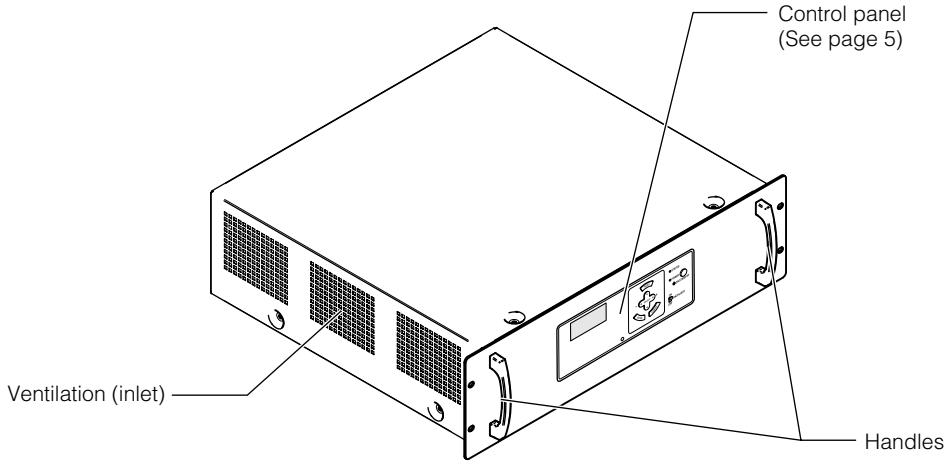
• Power cable for North America
(AC120V)



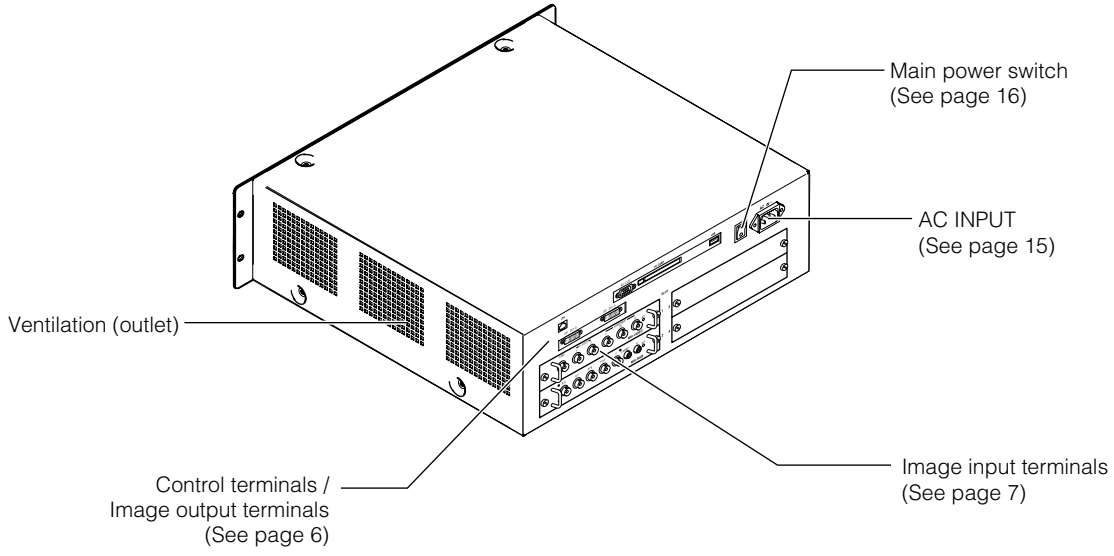
• Power cable for Europe
(AC230V)

# 1-3. Getting to Know Your Switcher

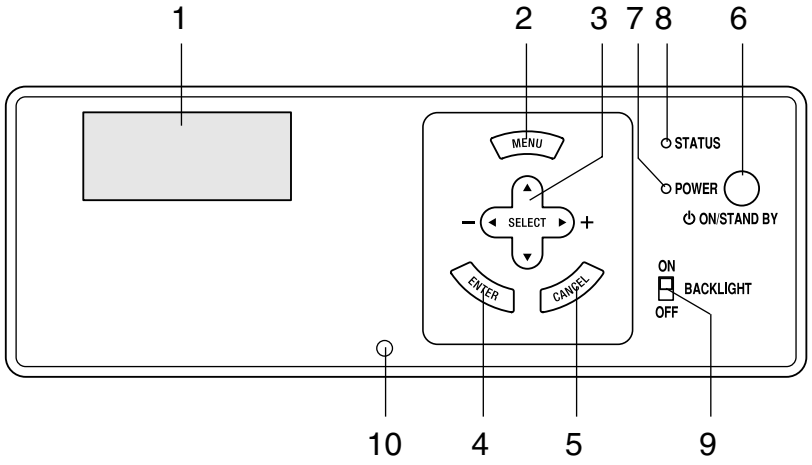
## 1-3-1. Front of the Switcher




## 1-3-2. Rear of the Switcher



## 1-3-3. Control Panel




1. LCD Screen
   The liquid crystal display screen shows the condition or the error message of the Switcher.

2. MENU Button
   Displays the Information menu which displays various information of the switcher.

3. SELECT ▲▼◀▶ (+) (–)
   ▲▼ : Use these buttons to select the menu of the item you wish to adjust.
   ◀▶ : Use these buttons to change the level of a selected menu item. A press of the E button executes the selection.

4. ENTER Button
   Executes your menu selection and activates items selected from the menu.

5. CANCEL Button
   Press this button to exit “Menus”. Press this button to return the adjustments to the last condition while you are in the adjustment or setting menu.

6. POWER Button (ON / STAND BY)(⏻)
   Use this button to turn the power on and off when the main power is supplied and the Switcher is in standby mode.

NOTE To turn on or off the Switcher, press and hold this button for a minimum of 1 second.

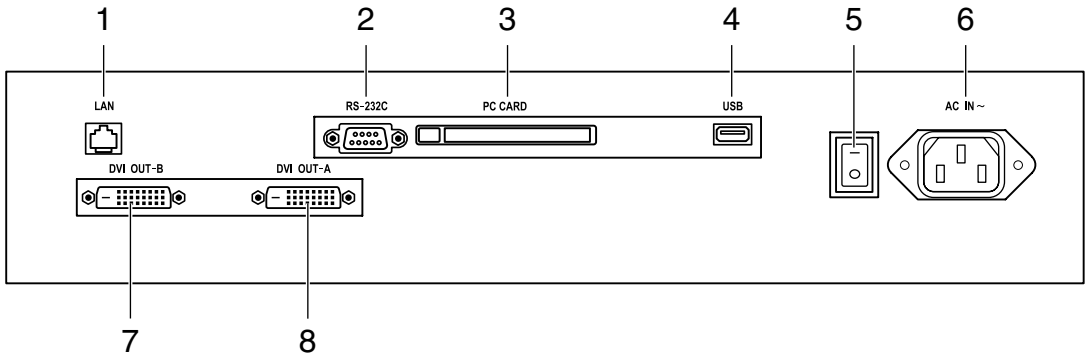
7. POWER Indicator
   When this indicator is green, the Switcher is on; when this indicator is orange, it is in standby mode.

8. STATUS Indicator
   This indicates the status of the Switcher during standby. The indicator will be lit in green at time of normal operation. When there is a fault, the indicator will be a flashing or steadily lit red.
   Please check the display information of the LCD screen when there is a fault.

9. BACK LIGHT Switch
   Use this switch to turn on the back light of the LCD screen.

10. Reset Switch
    Don’t touch this switch except for the service personnel. If a person except for the service personnel touched this switch, the Switcher breaks down, and contents of a setup inside the Switcher are erased.

## 1-3-4. Control Terminals/Image Output Terminals




1. LAN port (RJ-45)

This port is used for linked control from the NC series projector or for control of this unit from a PC. Use a commercially available LAN cross cable 10Base-T/100Base-T) for connection.

2. PC control terminal (RS-232C, D-Sub 9P)

This is a terminal for system extension. It is used to operate this unit by exclusive command via RS-232C interface with a PC. Use a commercially available RS-232C straight cable (male-female cable) to connect this unit to a PC.

3. PC card slot

Set a wireless LAN card, and you can control this unit from a PC using a wireless LAN.
Please inquire your dealer/distributor about use of a wireless LAN card.

4. USB port (type A)

This terminal is for the service personnel. It is used for maintenance of the switcher.

5. Main power switch

Set the main power switch to "| (ON)" to have the unit standby.

6. AC IN terminal

Connect the AC IN terminal of this unit in the wall outlet using the attached power cable.

7. DVI output A terminal (DVI-D 24P)

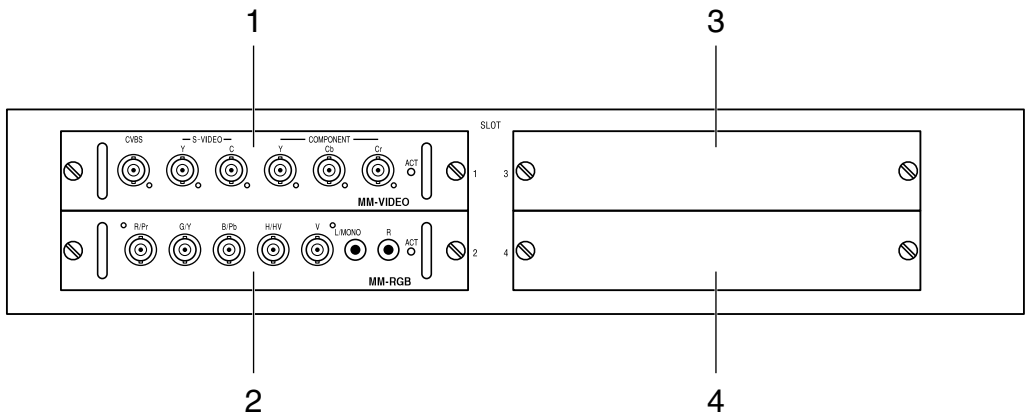
This terminal is for high 8-bit output of DVI. Connect this terminal with the DVI-A input terminal on the NC series projector. Use a commercially available DVI-D signal cable (single link).

8. DVI output B terminal (DVI-D 24P)

This terminal is for low 2-bit output of DVI. Connect this terminal with the DVI-B input terminal on the NC series projector. Use a commercially available DVI-D signal cable (single link).

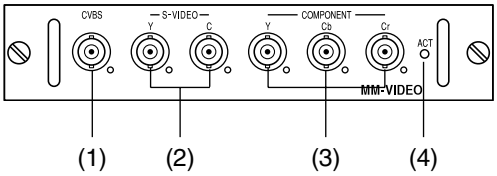
## 1-3-5. Image Input terminals

You can mount various interface boards to any position you want among slots 1 to 4. For removal and installation of the interface board, see page 13.




### 1. SLOT 1 (MM-VIDEO)

MM-VIDEO interface board is standard equipment.




#### (1) CVBS Input Connector (BNC Type)

Use a 75 Ω coaxial cable and connect it to the Composite Video output connector of a DVD player, or to other equipment.

#### (2) S-VIDEO Input Connectors (2 BNC Type)

Use a 75 Ω coaxial cable (2-conductor type) and connect it to the S-Video output connector of a DVD player, or to other equipment.

#### (3) COMPONENT Input Connectors (3 BNC Type)

Use a 75 Ω coaxial cable (3-conductor type) and connect it to the Component output connector of a DVD player, or to other equipment.

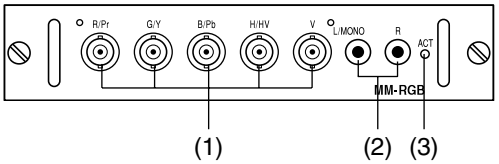
#### (4) ACT Indicator

Steady green light ..... Shows that this board is selected.

### 2. SLOT 2 (MM-RGB)

MM-RGB interface board is standard equipment.

Make sure to mount the accessory ferrite clamp core to the end of the RGB signal cable. The ferrite clamp core should be mounted as close to this unit as possible.




#### (1) RGB Input Connectors (5 BNC Type)

Use a 75 Ω coaxial cable (5-conductor type) and connect it to the display output connector of a personal computer or to other equipment.

#### (2) Audio Input Jacks (RCA-Phono)

These Jacks have no function with the Switcher.

#### (3) ACT Indicator

Steady green light ..... Shows that this board is selected.

### 3. SLOT 3

Use to extend the input terminal. See page 13.

### 4. SLOT 4

Use to extend the input terminal. See page 13.

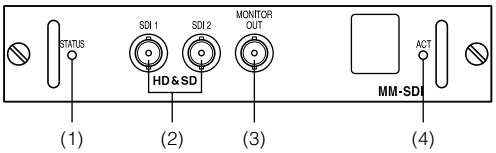
NOTE

- MM-VIDEO interface board and MM-RGB interface board are available as an option.
- For details about the available input signals, see page 23.

## 1-3-6. Option Boards

### MM-SDI Interface Board (Option)

The SDI signal input board is available as an option.




#### (1) STATUS Indicator

Steady green light ..... Shows that a signal is present.
Steady red light ..... Shows that there is no signal or an error occurs.
Steady orange light ..... Show that abnormality of input interface is displayed. Do again to turn on the power of the switcher.

#### (2) SDI 1 and SDI 2 Input Connectors (BNC type)

Use a 75 Ω coaxial cable and connect it to a video server or video equipment.

#### (3) MONITOR OUT Connector (BNC type)

Outputs the signal from the SDI 1 or SDI 2 input you currently select.
Connect this with a dedicated monitor and use it for checking the input signal.
Use a 75 Ω coaxial cable.

#### (4) ACT Indicator

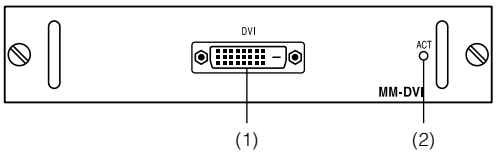
Steady green light ..... Shows that this board is selected.

NOTE Use the 75 Ω coaxial (5C-2V) cable or equivalent. Higher quality recommended.
Using a thinner cable than the above can degrade image quality or cause no image.

TIP
- For details about the compatible input signals, see page 23.
- Cycle the unit power in the following cases.
  - The status indicator is lighting in orange.
  - The image of the SDI signal is not displayed in normally.

## MM-DVI Interface Board (Option)

The DVI signal input board is available as an option.




### (1) DVI-D Input Connector (DVI-D 24 Pin)

Use a DVI-D Signal cable and connect it to the DVI output connector of a computer.

### (2) ACT Indicator

Steady green light ..... Shows that this board is selected.

NOTE

- When Viewing a DVI Digital Signal:
  - Use the DVI-D signal cable compliant with DDWG (Digital Display Working Group) DVI (Digital Visual Interface) revision 1.0 standard. The DVI-D cable should be within 5 m (196") long.
  - To project a DVI digital signal, be sure to connect the PC and the Switcher using a DVI-D signal cable before turning on your PC or Switcher.
  - Turn on the Switcher first and select DVI (DIGITAL) from the source menu before turning on your PC. Failure to do so may not activate the digital output of the graphics card resulting in no picture being displayed. Should this happen, restart your PC.
  - Do not disconnect the DVI-D signal cable while the Switcher is running. If the signal cable has been disconnected and then re-connected, an image may not be correctly displayed. Should this happen, restart your PC.

TIP

For details about the compatible input signals, see page 23.

# 2. Installation

## 2-1. Making Connections

NOTE When using with a notebook PC, be sure to connect between the Switcher and the notebook PC before turning on the power to the notebook PC. In most cases signal cannot be output from RGB output unless the notebook PC is turned on after connecting with the Switcher.

* If the screen goes blank while using your remote control, it may be the result of the computer's screen-saver or power management software.

### When Viewing a DVI Digital Signal:

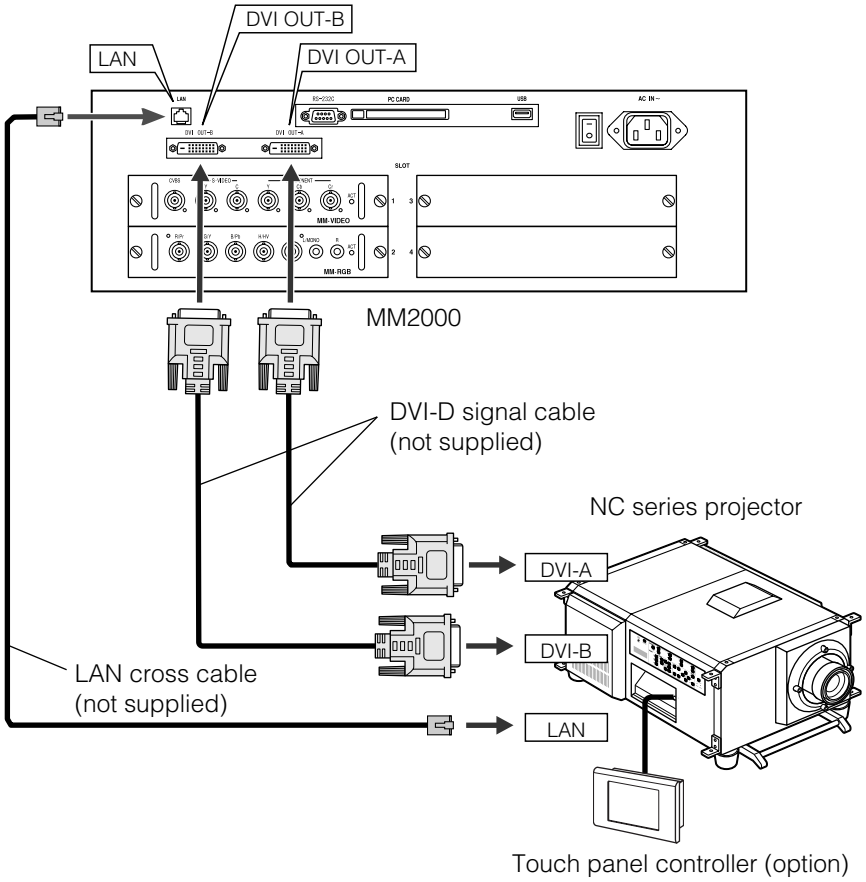
To project a DVI digital signal, be sure to connect the PC and the Switcher using a DVI-D signal cable before turning on your PC or the Switcher. Turn on the Switcher first and select DVI (DIGITAL) from the source menu before turning on your PC.

Failure to do so may not activate the digital output of the graphics card resulting in no picture being displayed. Should this happen, restart your PC.

Do not disconnect the DVI-D signal cable while the Switcher is running. If the signal cable has been disconnected and then reconnected, an image may not be correctly displayed. Should this happen, restart your PC.

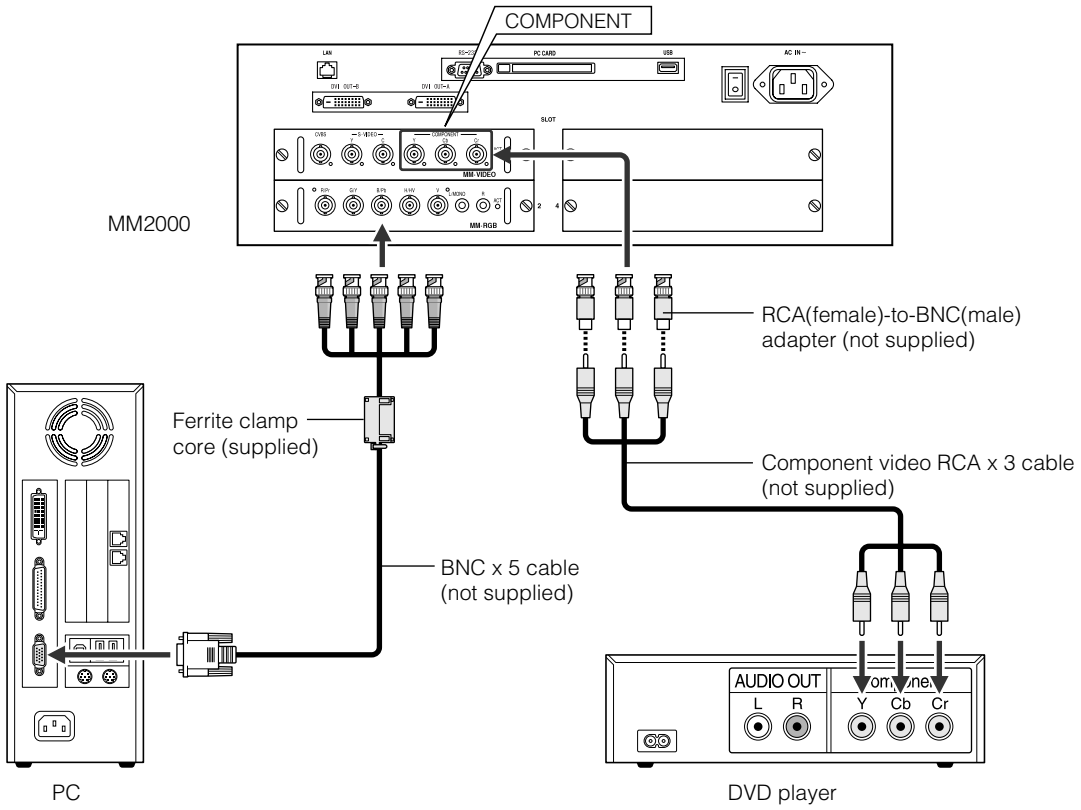
# 2-2. Connecting Your Projector

Connect this unit and the projector as shown below. Connect the DVI-D A input terminal (DVI-A) on the projector and the DVI OUT-A terminal on this unit, as well as the DVI-D B input terminal (DVI-B) on the projector and the DVI OUT-B terminal on this unit using two commercially available DVI-D signal cables.
Alternatively, when a mode to control this unit from the projector (linked mode) is used, connect this unit with the projector using a LAN cable.



# 2-3. Connecting to the Image Input Terminals

This Switcher has two interface boards, MM-VIDEO and MM-RGB as standard equipment. See page 7. Connect required video signals. Four interface boards can be inserted in the Switcher at the same time. See page 13.



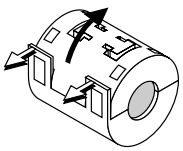

## Mounting the ferrite clamp core

Use the supplied ferrite clamp core.

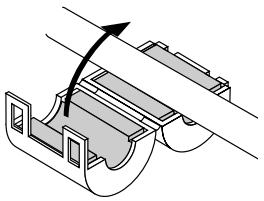
**1** Open the accessory ferrite clamp core and attach it to the cable.

When doing so, attach this as close as possible to end that goes to the switcher.

* Push the catch to open the ferrite clamp core.

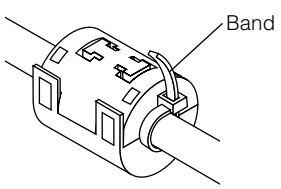


**2** Close the ferrite clamp core tightly.



**3** Fix the supplied band to the cable as a stopper.

* Pull the end of the band to tighten it. Cut off the surplus of the band.



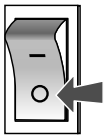
# 2-4. Install the Option Boards and Expand the Image Input Terminals

Four types of option boards are available for the Switcher.
Please purchase as required.

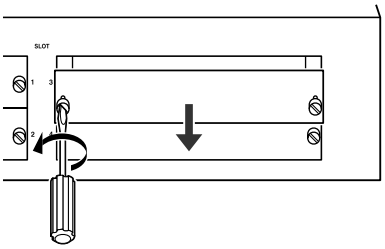
**Warning**

When installing or removing the board from the Switcher, do so after turning off the main power switch of the Switcher. Failing to do so could result in electrical shock.

**1** Turn off the main power switch of the Switcher.

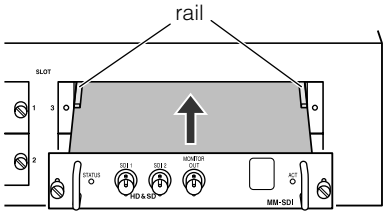


**2** Use a flat-bladed screwdriver to loosen the 2 screws of the slot panel located at the input terminals portion of the Switcher, then remove the screws and panel.




NOTE
- Keep the removed screws and panel in a safe place.
- Please do not use the Switcher while the panel is disengaged. Foreign matter could enter the interior and cause breakdown.

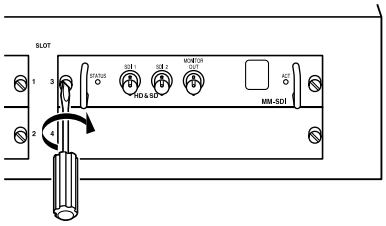
**3** Insert the board into the slot.




The example shown in the drawing is the MM-SDI board.

NOTE When inserting the board into the slot, insert it so that it moves along the rails located at the right and left of the slot. If the board is not positioned between the rails the connector will not be engaged and the board will not be operational.

**4** Tighten the 2 screws located at right and left of the board and fasten securely.

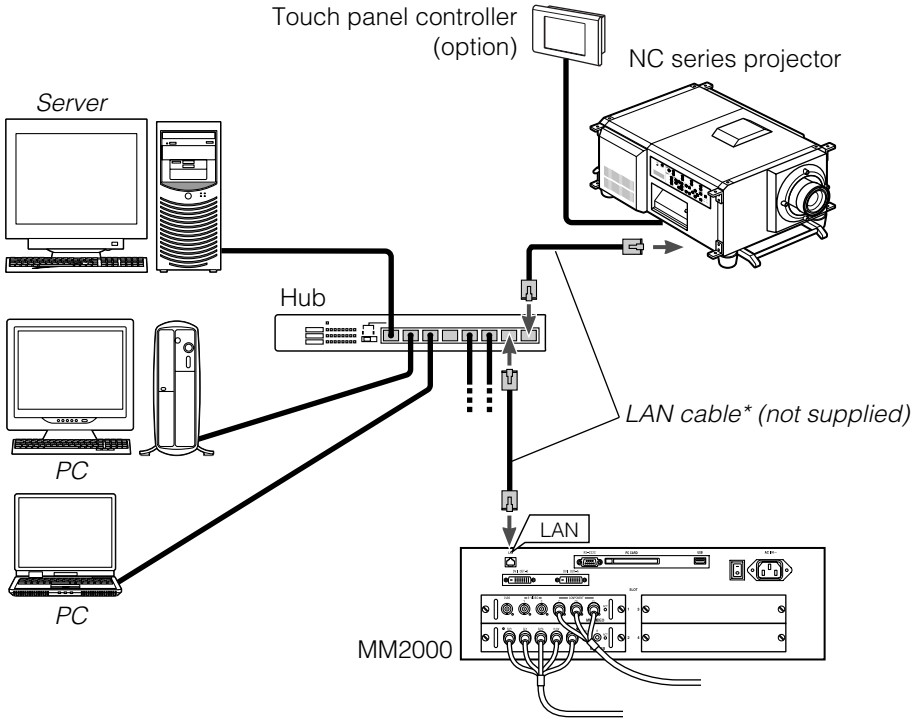



TIP The following 4 types of option boards can be inserted in the Switcher.
Multiple option boards of the same model can also be inserted.
- MM-VIDEO (See page 7)
- MM-RGB (See page 7)
- MM-SDI (See page 8)
- MM-DVI (See page 9)

# 2-5. Connecting to a Network

Connect various control terminals as required.
The switcher is provided with a LAN port (RJ-45) as standard equipment. With a LAN cable connected, you can utilize the LAN environment.
In addition, when the switcher is connected with a PC using a LAN cross cable, you can use a mode for setting and adjustment of the switcher (standalone mode).
Contact your dealer/distributor about use of the switcher in standalone mode.

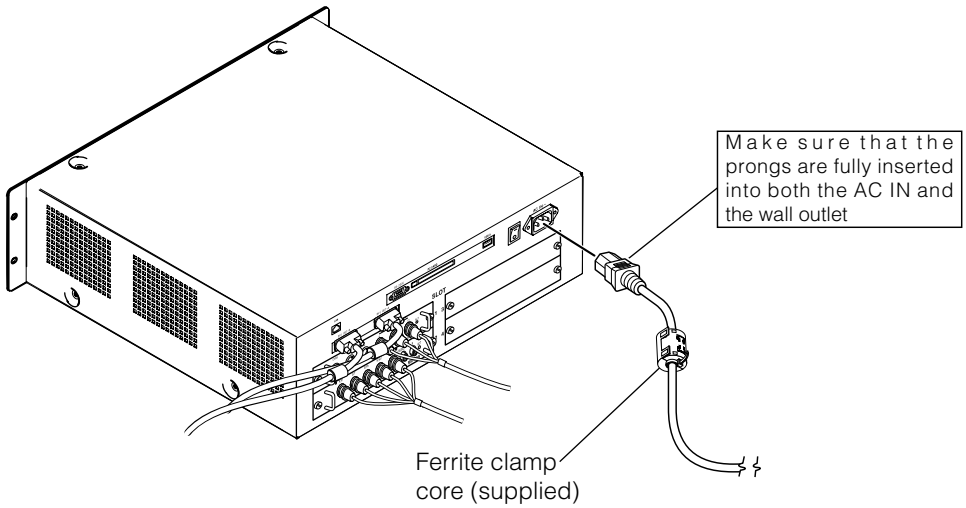
[Example of Connection with LAN]




* When the switcher and PC are connected, use the LAN cross cable.

# 2-6. Connecting the Supplied Power Cable

Connect the supplied power cable to the Switcher.
First connect the supplied power cable's three-pin plug to the AC IN of the Switcher, and then connect the other plug of the supplied power cable in the wall outlet.




NOTE
- Always mount the ferrite clamp core to the power cable. The ferrite clamp core should be mounted as close to this unit as possible.
- Do not unplug the power cable from the wall outlet or switcher when the switcher is powered on. Doing so can cause damage to the AC IN connector of the switcher and (or) the prong plug of the power cable. Carefully operate the unit when "Power ON" or "Please wait" is displayed on the LCD screen in particular.

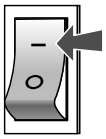
# 3.
# Projecting an Image

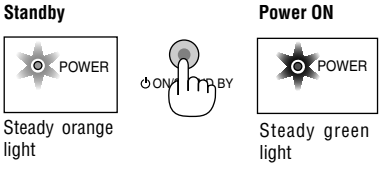
Specify “Title select” from the projector to project images of a device connected to this unit. Refer to the Projector User’s Manual for details on how to operate the projector.
The procedures to turn on and off this unit are described below.

## 3-1. Turning on the Switcher

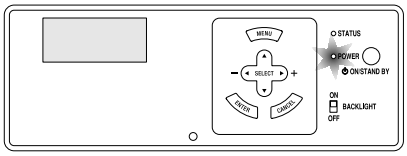
NOTE
- When plugging in or unplugging the supplied power cable, make sure that the main power switch is pushed to the off[O] position. Failure to do so may cause damage to the Switcher.
- The Switcher has two power switches: main power switch and POWER button.

Turn on the power switch of the projector connected to the Switcher.
To turn on the main power to the Switcher, press the Main Power switch to the ON position ( I ).





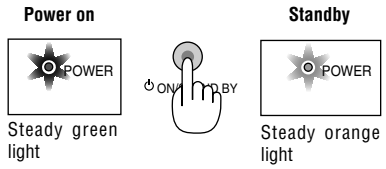

Before you turn on your Switcher, ensure that the computer or video source is turned on.
Only after you press the ON/STAND BY button on the Switcher cabinet for a minimum of 1 second will the power indicator turn to green and the Switcher become ready to use.



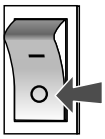
# 3-2. Turning off the Switcher

## To turn off the Switcher:

First press the POWER (ON/STAND BY) button on the Switcher cabinet for a minimum of 1 second. The POWER indicator will glow orange.




Second, turn off the Main Power switch. The power indicator will go out.
Last unplug the power cable.



NOTE

- When switching off the Main Power switch, set the Switcher to the standby mode beforehand. Doing so can cause damage to the Switcher.
- When “Please wait” is displayed in the LDC screen, do not turn off the main power or pull out the power plug from the outlet. Otherwise, your equipment may be damaged.

# 4. LCD Menu

## 4-1. Basic operation from LCD screen menu

With the LCD screen menu, you can display various information about this unit.

### 4-1-1. Screen display

When not displaying the menu, the following screen is usually displayed.

**When in standby**

When this unit is in the standby state, the following is displayed.

**When power is on**

When the power is turned on, the following is displayed.

← Number of the selected slot (S1 to S4) and the board name are displayed.
← Type of the input signal is displayed.

## 4-1-2. Operating menus

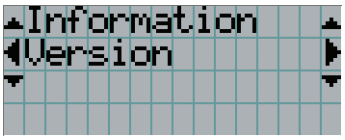
Preparation: Turn on the unit (See page 16).

**1** Press the MENU button.

A menu is displayed on the LCD screen.

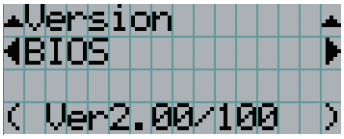
**2** Press the SELECT ◀▶ button to display “Version”.

As you press the SELECT ◀▶ button, the display changes among “Version” ←→ “IP Address” ←→ “Error Code”.




**3** Press the SELECT ▼ button.

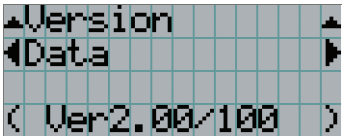
The submenu “BIOS” of “Version” is displayed.
The menu item can be selected by pressing the ENTER button instead of the SELECT ▼ button
• Press the SELECT ▲ button or CANCEL button to go back to the previous status.




* This is the screen when power has been turned on. The menu of part can be displayed in standby state.

**4** Select the submenu “Data” by pressing the SELECT ◀▶ button.

As you press the SELECT ◀▶ button, the display changes in a cycle “BIOS” ←→ “Firmware” ←→ “Data” ←→ “Serial No.” and the version information is displayed.




**5** Press the SELECT ▼ button for several times.

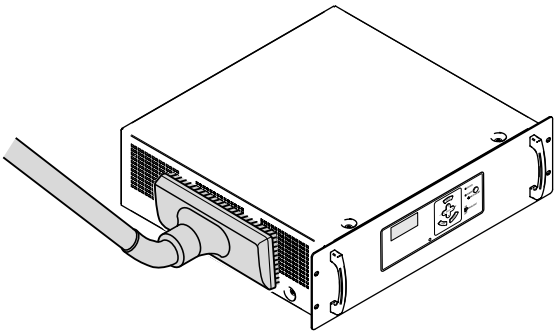
Every time the SELECT ▼ button is pressed, the display returns to the upper tiers one by one.

# 4-2. List of LCD screen menus

| Menu | | | Description |
|---|---|---|---|
| Input Source | | | Displays the selected slot number, the board name, and type of input signal. |
| Information | Version | BIOS | Displays the BIOS version of the switcher. |
| | | Firmware | Displays the firmware version of the switcher. |
| | | Data | Displays the data version of the switcher. |
| | | FPGA | Displays the FPGA version of the switcher. |
| | | Serial No. | Displays the Serial number of the switcher. |
| | IP Address | | Displays the IP address of the switcher. |
| | Error Code | | Displays the currently occurring error. |

# 5. Maintenance

## 5-1. Cleaning the Cabinet



1. Turn off the Switcher before cleaning.
2. Clean the cabinet periodically with a damp cloth. If heavily soiled, use a mild detergent. Never use strong detergents or solvents such as alcohol or thinner.

# 6. Appendix

## 6-1. Troubleshooting

Before asking for repair, please check your connection, settings and operation once again. For control of the switcher, contact the person in charge of setting and adjustment. If the trouble cannot be corrected, please contact your dealer/distributor for instructions or repair.

### 6-1-1. Common Problems & Solutions

| Problem | Check These Items | Ref. page |
|---|---|---|
| Does not turn on | Check that the power cable is plugged in and that the main power switch on the Switcher is on. | page 15 |
| | Check that the main power switch on the Switcher is on. | page 16 |
| No picture | Check to see if the connected input terminal has been selected. Check that the ACT indicator is turned on. | - |
| | Select correct option in the Signal Select for current signal. | page 11 or 12 |
| | For RGB (computer) input, is it a resolution and frequency supported by the input signals? Check the resolution of the PC. | page 23 |
| | If the PC screen does not project properly, see the following pages. | next page |
| Image is scrolling vertically, horizontally or both | Use the menus or Source/Input button on the remote control to select the source you want to input. | page 23 |
| Cross color in RGB mode | Characters may blink or color display way be shifted in the following cases depending on the setting of this unit. In such a case, contact the person in charge of setting and adjustment.<br>• The resolution of the PC screen is changed.<br>• The PC or connection cable is changed. | - |

## 6-1-2. When the PC Screen Does Not Project Properly

Check the following if the screens do not project properly when projecting while connected to the PC.

### Timing for PC Startup

Start the PC after connecting the PC and device.
Particularly, for laptop PCs, the external output signal cannot be output if the PC is started before connecting the device.

### When it is necessary to operate after starting the PC

For laptop PCs, to output an external output signal after booting up, there are instances where further operations are required. (Even though the LCD of your laptop PC is displayed, it does not mean that external output signals are being output.)

TIP

- For a Windows based laptop, switch to "external" using a function key.
  - While holding down the Fn key, press a function key that has icons such as (▂/▣) or (LCD/VGA) to switch. The image will be projected after a short amount of time. (This is the time for the projector to recognize the signal.)

    [PC Manufacturers and Example of Key Operations]

| | |
|---|---|
| Fn + F3 | NEC, Panasonic, Gateway, SOTEC |
| Fn + F4 | HP |
| Fn + F5 | TOSHIBA, SHARP, MITSUBISHI |
| Fn + F7 | SONY, IBM, HITACHI |
| Fn + F8 | DELL, EPSON |
| Fn + F10 | FUJITSU |

    Normally, each time you press the key will toggle through "external output" → "PC screen and External Simultaneous output" → "PC screen."
  - If you use a laptop PC from a manufacturer not listed in the table, refer to your laptop's help menu or your owner's manual.

### When the External Output Signal is Not Correct When Simultaneously Displaying on a Laptop

There are instances in which the projected image is not normal even if the image on the laptop screen is normal.
In many cases, it is thought to be caused by the limitations (when simultaneously outputting the LCD screen of the laptop and the external signal, a signal that is not at standard ratings can't be output) of the laptop. If the external output signal is greatly out of range of the signals that this projector can handle, the image will not be normal even if adjusted.
If this occurs, stop simultaneous display of the laptop, and set it to a mode for only external signals (in many cases, this mode can be entered by closing the LCD screen). This sometimes sets the external output signal to a signal that is standard.

# 6-2. Error code list

Error messages relating to MM2000 are displayed in the LCD screen of the switcher, the LCD screen of the projector, and the touch panel (optional).
Please inquire your dealer/distributor about action to be taken for each error code.

| Error code | Error message | Description |
|---|---|---|
| 130 | MMS Comm Fail | Communication error with MMS |
| 131 | MMS Fan Stop | MM2000 fan stopped |
| 132 | MMS Fail : FPGA *** | MMS system error |
| | MMS Fail : Default Data | MMS system data error |
| | MMS Fail : User Data | MMS user region error |

# 6-3. Compatible input signal list

| Signal | Board type | Resolution | Frequency | | |
|---|---|---|---|---|---|
| | | | Horizontal freq. [kHz] | Refresh rate. [Hz] | Dots [MHz] |
| NTSC | VIDEO | - | 15.73 | 59.94 i | - |
| PAL | VIDEO | - | 15.63 | 50 i | - |
| PAL60 | VIDEO | - | 15.73 | 59.94 i | - |
| SECAM | VIDEO | - | 15.63 | 50 i | - |
| VESA | RGB / DVI | 640 x 480 | 31.47 | 59.94 | 25.17 |
| VESA | RGB / DVI | 640 x 480 | 37.86 | 72.81 | 31.5 |
| VESA | RGB / DVI | 640 x 480 | 37.5 | 75 | 31.5 |
| VESA | RGB / DVI | 640 x 480 | 43.27 | 85.01 | 36 |
| VESA | RGB / DVI | 800 x 600 | 35.16 | 56.25 | 36 |
| VESA | RGB / DVI | 800 x 600 | 37.88 | 60.32 | 40 |
| VESA | RGB / DVI | 800 x 600 | 48.08 | 72.19 | 50 |
| VESA | RGB / DVI | 800 x 600 | 46.88 | 75 | 49.5 |
| VESA | RGB / DVI | 800 x 600 | 53.67 | 85.06 | 56.25 |
| VESA | RGB / DVI | 1024 x 768 | 48.36 | 60 | 65 |
| VESA | RGB / DVI | 1024 x 768 | 56.48 | 70.07 | 75 |
| VESA | RGB / DVI | 1024 x 768 | 60.02 | 75.03 | 78.75 |
| VESA | RGB / DVI | 1024 x 768 | 68.68 | 85 | 94.5 |
| VESA | RGB / DVI | 1152 x 864 | 54.35 | 60.05 | 80 |
| VESA | RGB / DVI | 1152 x 864 | 63.99 | 70.02 | 94.2 |
| VESA | RGB / DVI | 1152 x 864 | 67.5 | 75 | 108 |
| VESA | RGB / DVI | 1152 x 864 | 77.49 | 85.06 | 121.5 |
| VESA | RGB / DVI | 1280 x 960 | 60 | 60 | 108 |
| VESA | RGB / DVI | 1280 x 960 | 75 | 75 | 129.6 |
| VESA | RGB / DVI | 1280 x 960 | 85.94 | 85 | 148.5 |
| VESA | RGB / DVI | 1280 x 1024 | 63.98 | 60.02 | 108 |
| VESA | RGB / DVI | 1280 x 1024 | 79.98 | 75.02 | 135 |
| VESA | RGB / DVI | 1280 x 1024 | 91.15 | 85.02 | 157.5 |
| VESA | RGB / DVI | 1400 x 1050 | 65.32 | 59.98 | 121.75 |
| VESA | RGB / DVI | 1400 x 1050 | 82.28 | 74.87 | 156 |
| VESA | RGB / DVI | 1400 x 1050 | 93.88 | 84.96 | 179.5 |
| VESA | RGB / DVI | 1600 x 1200 | 75 | 60 | 162 |
| VESA | DVI (Dual) | 1600 x 1200 | 81.25 | 65 | 175.5 |
| VESA | DVI (Dual) | 1600 x 1200 | 87.5 | 70 | 189 |
| VESA | DVI (Dual) | 1600 x 1200 | 93.75 | 75 | 202.5 |
| VESA | DVI (Dual) | 1600 x 1200 | 100 | 80 | 216 |
| SDTV 483i60 | VIDEO | 720 x 483 | 15.73 | 60 i | 13.5 |
| SDTV 576i50 | VIDEO | 702 x 576 | 15.63 | 50 i | 13.5 |
| SDTV 483p60 | RGB*1 / DVI | 720 x 483 | 31.47 | 60 | 27 |
| SDTV 576p50 | RGB*1 / DVI | 702 x 576 | 31.25 | 50 | 27 |
| HDTV 720p60 | RGB / DVI | 1280 x 720 | 45 | 60 | 74.25 |
| HDTV 1080PsF24 | RGB / DVI | 1920 x 1080 | 27 | 48 i | 74.25 |
| HDTV 1080i50 | RGB / DVI | 1920 x 1080 | 28.13 | 50 i | 74.25 |
| HDTV 1080i60 | RGB / DVI | 1920 x 1080 | 33.75 | 60 i | 74.25 |
| HDTV 1080p24 | RGB*2 / DVI | 1920 x 1080 | 27 | 24 | 74.25 |
| HDTV 1080p50 | RGB / DVI | 1920 x 1080 | 56.25 | 50 | 148.5 |
| HDTV 1080p60 | RGB / DVI | 1920 x 1080 | 67.5 | 60 | 148.5 |
| SD-SDI 525i60 | SDI | 720 x 483 | 15.73 | 60 i | 13.5 |
| SD-SDI 625i50 | SDI | 702 x 576 | 15.63 | 50 i | 13.5 |
| HD-SDI 720p60 | SDI | 1280 x 720 | 45 | 60 | 74.25 |
| HD-SDI 1080PsF24 | SDI | 1920 x 1080 | 27 | 48 i | 74.25 |
| HD-SDI 1080i50 | SDI | 1920 x 1080 | 28.13 | 50 i | 74.25 |
| HD-SDI 1080i60 | SDI | 1920 x 1080 | 33.75 | 60 i | 74.25 |
| HD-SDI 1035i60 | SDI | 1920 x 1080 | 33.75 | 60 i | 74.25 |
| HD-SDI 1080p24 | SDI | 1920 x 1080 | 27 | 24 | 74.25 |
| HD-SDI 1080p25 | SDI | 1920 x 1080 | 28.125 | 25 | 74.25 |
| HD-SDI 1080p30 | SDI | 1920 x 1080 | 33.75 | 30 | 74.25 |

*1 Composite sync signal does not support.

*2 Sync on Green signal does not support.

- At the time of shipping, adjustment is made to the standard signal of the display resolution/frequency; however, adjustment may be required depending on the type of personal computer.
- SDTV and HDTV signals also support a vertical frequency of fV/1.001.
- Composite sync and other signals might not be displayed properly.
- When the resolution has been converted for the display (and is not the real resolution of the display), the thickness and other aspects of the characters and ruled lines might not be uniform.
- Please contact your dealer about details concerning the connection of signals other than the aforementioned.

# 6-4. Specifications

| Model Number | | | MM2000 |
|---|---|---|---|
| Image Input | VIDEO | Composite Video | BNC x 1, 75 Ω, 1.0 Vp-p |
| | | S-Video | BNC x 2, 75 Ω, Y: 1.0 Vp-p C: 0.28 to 0.3 Vp-p |
| | | Component Video | BNC x 3, 75 Ω, Y: 1.0 Vp-p Cb, Cr: ±0.35 Vp-p |
| | | Horizontal Resolution | NTSC, PAL: 500 TV SECAM: 300 TV |
| | RGB | R.G.B.H.V. | BNC x 5<br>G/Y: 75 Ω, 0.7 Vp-p / 1.0 Vp-p<br>R, B/Cb, Cr: 75 Ω, 0.7 Vp-p / ±0.35 Vp-p<br>H/CS, V:1 kΩ TTL•75 Ω 0.7 to 2.0Vp-p Selection Type |
| | | Frequency | Maximum sampling frequency: 165 MHz<br>Horizontal frequency: 31 kHz to 105 kHz<br>Vertical frequency: 24 Hz to 96 Hz |
| Image Input (Optional board specifications) | DVI-D | DVI-D connector | 1 input, dual link supported |
| | | Frequency | Maximum pixel clock frequency: 220 MHz |
| | SDI | Input terminal | 2 input<br>SDTV: SMPTE 259M Level-C<br>HDTV:SMPTE 292M |
| | | Output terminal | 1 output for monitoring |
| Image output | Resolution | | 2048 x 1080 p |
| | Output method | | DVI-D twin link（DVI OUT-A: upper 8-bits, DVI OUT-B: lower 2-bits） |
| Image signal processing | Color Bit Depth | | 10 bits for all processes for each color (excluding RGB, and DVI input board) |
| | I/P conversion | | Multi-directional filter method (SDTV, HDTV)<br>3:2, 2:2 pull down signal, animation format compatible type |
| | Noise reduction | | Per-pixel motion adaptive method (SDTV) |
| | Enhancer | | Multi-directional filter method, Contrast Enhancement |
| Input / Output Terminals | Input Slot | | 4 slots (One board each for the VIDEO board and analog RGB input board are standard equipment; 2 slots are for expansion.) |
| | MM-VIDEO (Standard board) | Video Input | BNC x 1 (Composite Video) |
| | | | BNC x 2 (S-Video) |
| | | | BNC x 3 (DVD Component) |
| | MM-RGB (Standard board) | Analog RGB Input | BNC x 5 (shared with the component input connectors) |
| | | Audio Input | RCA (L/MONO, R) x 1 (No function) |
| | MM-DVI (Option board) | Digital RGB Input | DVI-D x 1 |
| | | Audio Input | Stereo Mini Jack 1 (No function) |
| | MM-SDI (Option board) | SDI Input | BNC x 2 |
| | | SDI Output | BNC x 1 |
| | Output Terminal | | DVI-D x 2 (DVI OUT-A, DVI OUT-B) |
| | USB Port | | A Type x1 (For service personnel) |
| | LAN Port | | RJ-45 x 1 |
| | PC Control Terminal | IN | D-Sub 9 pin x 1 (For service personnel) |

| | | |
|---|---|---|
| PC Card | | Type II x 1 (For service personnel) |
| Function | Image switching | Quick seamless switching (function expansion) |
| | 2 screen mode | Picture-in-picture, side-by-side (function expansion) |
| | Keystone correction | Vertical correction (function expansion) |
| | Projector connection | Linking function through PC control |
| Environment | Operational Temperature | 5 to 35˚C |
| | Operational Humidity | 10 to 85% (Must be no condensation) |
| Storage Environment | Storage Temperature | -10 to 50 ˚C |
| | Storage Humidity | 10 to 85% (Must be no condensation) |
| Power supply | | AC 100-240 V 50/60 Hz 0.7-0.3 A |
| Dimensions | | 482 (W) x 132 (H) x 411 (D) mm (not including protrusions) |
| Net weight | | 10 kg |
| Regulations | | U.S.A<br>UL Approved (UL 60950-1)<br>Meets FCC Class A requirements<br>Canada<br>C-UL Approved (CSA 60950-1)<br>Meets DOC Canada Class A requirements<br>Australia/New Zealand<br>Meets AS/NZS CISPR.22 Class A<br>Europe<br>Meets Low Voltage Directive (EN60950-1, TÜV GS Approved)<br>Meets EMC Directive (EN55022, EN55024, EN61000-3-2, EN61000-3-3)<br>CE |
| Optional components | | RGB signal input board MM-RGB<br>Video signal input board MM-VIDEO<br>SDI signal input board MM-SDI<br>DVI signal input board MM-DVI |

- In the table above, specifications are when connected to the projector.
- Note that the specifications and design can change without prior notice.
- Function expansion refers to the possibility for expanded functions by future upgrade of the software.

## Caracteristiques techniques

| Numéro de modèle | | | MM2000 |
|---|---|---|---|
| Entrée d'image | VIDEO | Vidéo Composite | BNC x 1, 75 ohms, 1,0 Vp-p |
| | | S-Vidéo | BNC x 2, 75 ohms, Y: 1,0 Vp-p C: 0,28 à 0,3 Vp-p |
| | | Vidéo Composante | BNC x 3, 75 ohms, Y: 1,0 Vp-p Cb, Cr: ±0,35 Vp-p |
| | | Résolution Horizontale | NTSC, PAL : 500 TV SECAM : 300 TV |
| | RGB | R.G.B.H.V. | BNC x 5<br>G/Y: 75 ohms, 0,7 Vp-p / 1,0 Vp-p<br>R, B/Cb, Cr: 75 ohms, 0,7 Vp-p / ±0,35 Vp-p<br>H/CS, V: 1 kohm TTLo75 ohms 0,7 à 2,0Vp-p Type Sélection |
| | | Fréquence | Taux d'échantillonnage maximum: 165 MHz<br>Fréquence horizontale: 31 kHz à 105 kHz<br>Fréquence verticale: 24 Hz à 96 Hz |
| Entrée d'image (Caractéristiques de la carte en option) | DVI-D | Connecteur DVI-D | 1 entrée, compatible double lien |
| | | Fréquence | Fréquence d'horloge de pixel maximum: 220 MHz |
| | SDI | Borne d'entrée | 2 entrées<br>SDTV: SMPTE 259M Niveau-C<br>HDTV: SMPTE 292M |
| | | Borne de sortie | 1 sortie de contrôle |
| Sortie d'image | Résolution | | 2048 x 1080 p |
| | Méthode de sortie | | DVI-D lien jumeau (DVI OUT-A: 8-bits supérieur, DVI OUT-B: abaissez 2 bits) |
| Traitement du signal d'image | Profondeur de bit couleur | | 10 bits pour le traitement de chaque couleur (sauf pour les cartes d'entrée RGB et DVI) |
| | Conversion I/P | | Méthode à filtre multi-directionnel (SDTV, HDTV)<br>Signal d'ajustement 24 images 3:2, 2:2, type compatible format d'animation |
| | Réduction du bruit | | Méthode par adaptation d'animation par pixel (SDTV) |
| | Amplificateur | | Méthode par filtre multi-directionnel, Amplification du contraste |
| Borne d'entrée/sortie | Fente d'entrée | | 4 fentes (Une carte chacune car la carte VIDEO et la carte d'entrée RGB analogique sont des équipements standard ; 2 fentes sont pour extension.) |
| | MM-VIDEO (Carte standard) | Entrée vidéo | BNC x 1 (Vidéo Composite) |
| | | | BNC x 2 (S-Vidéo) |
| | | | BNC x 3 (Composant DVD) |
| | MM-RGB (Carte standard) | Entrée RGB analogique | BNCx5 (partagée avec les connecteurs d'entrée composants) |
| | | Entrée audio | RCA (L/MONO, R) x 1 (pas de fonction |
| | MM-DVI (Carte optionnelle) | Entrée RGB numérique | DVI-D x 1 |
| | MM-SDI (Carte optionnelle) | Entrée SDI | BNC x 2 |
| | | Sortie SDI | BNC x 1 |
| | Borne de sortie | | DVI-D x 2 (DVI OUT-A, DVI OUT-B) |
| | Port USB | | A Type x1 (Pour le personnel de service) |
| | Port LAN | | RJ-45 x 1 |
| | Carte Contrôle PC | IN | D-Sub à 9 broches x 1 (Pour le personnel de service) |

| | | |
|---|---|---|
| Carte PC | | Type II x 1 (Pour le personnel de service) |
| Fonction | Commutation d'image | Commutation continue rapide (extension de fonction) |
| | 2 modes d'écran | Image par image, côte à côte (extension de fonction) |
| | Correction trapézoïdale | Correction verticale (extension de fonction) |
| | Connexion du projecteur | Fonction de lien par contrôle PC |
| Environnement | Température de fonctionnement | 5 à 35˚C |
| | Humidité de fonctionnement | 10 à 85% (sans condensation) |
| Environnement de stockage | Température de stockage | -10 à 50˚C |
| | Humidité de stockage | 10 à 85% (sans condensation) |
| Alimentation électrique | | 100-240 V CA, 50/60 Hz 0.7-0.3 A |
| Dimensions | | 482 (L) x 132 (H) x 411 (P) mm (sans les parties saillantes) |
| Poids net | | 10 kg |
| Réglementations | | U.S.A<br>Agréé UL (UL 60950-1)<br>Conforme aux exigences de classe A FCC<br>Canada<br>Agréé C-UL (CSA 60950-1)<br>Conforme aux exigences de classe A DOC Canada<br>Australie/Nouvelle Zélande<br>Conforme aux exigences de classe A AS/NZS CISPR.22<br>Europe<br>Confome à la directive basse tension (EN60950-1, agréé TÜV GS)<br>Conforme à la directive EMC (EN55022, EN55024, EN61000-3-2, EN61000-3-3)<br>CE |
| Composants optionnels | | Carte d'entrée de signal vidéo MM-VIDEO<br>Carte d'entrée de signal SDI MM-SDI<br>Carte d'entrée de signal DVI MM-DVI |

- Dans le tableau ci-dessus, les caractéristiques techniques correspondent à une connexion au projecteur.
- L'es caractéristiques techniques sont sujettes à modification sans préavis.
- L'extension de fonction fait référence à la possibilité d'étendre les fonctions lors des mises à niveau du logiciel.

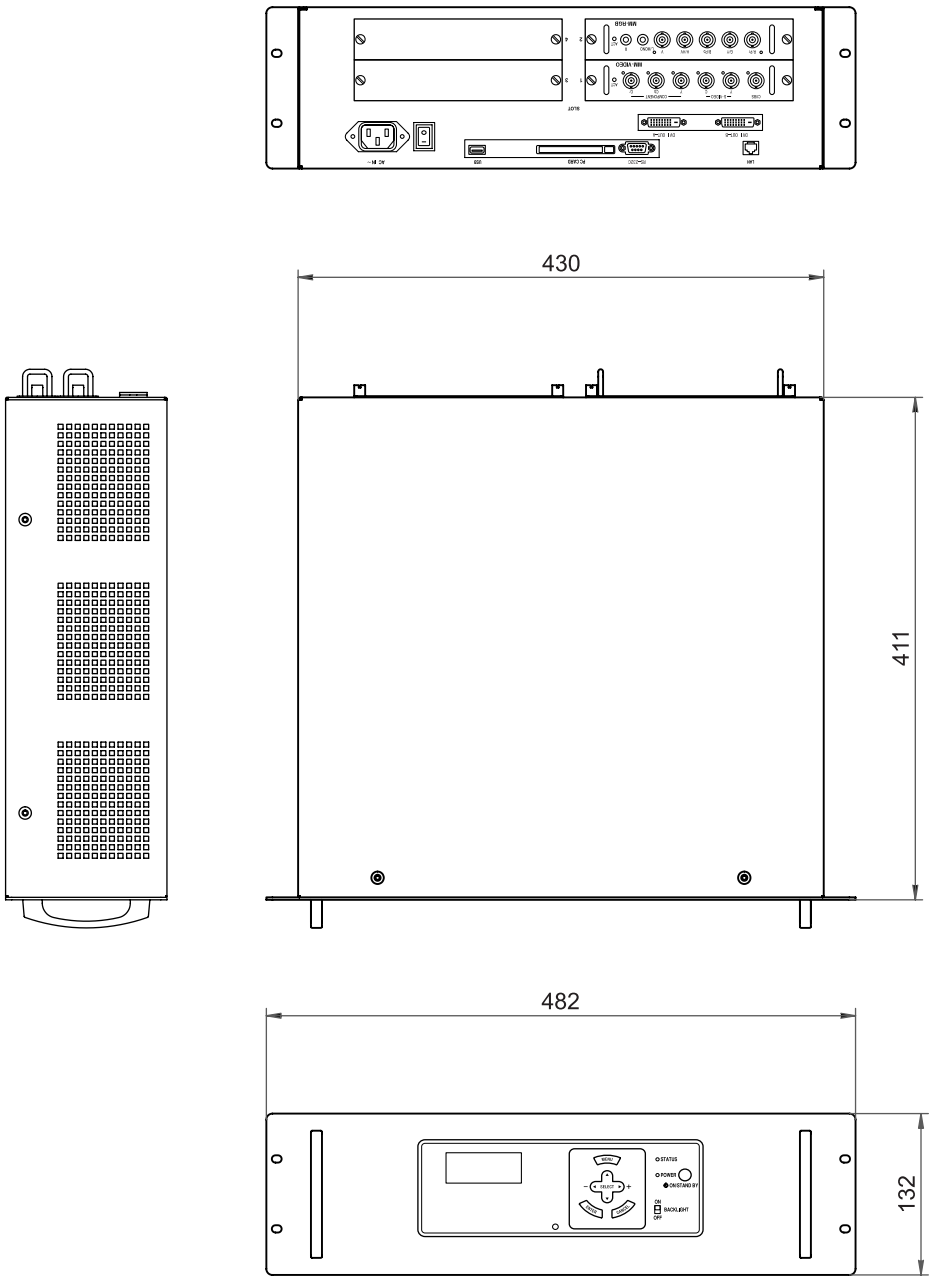
## Technische Daten

| Modellnummer | | | MM2000 |
|---|---|---|---|
| Bildeingang | VIDEO | Komposit-Video | BNC x 1, 75 Ohm, 1,0 Vp-p |
| | | S-Video | BNC x 2, 75 Ohm, Y: 1,0 Vp-p C: 0,28 bis 0,3 Vp-p |
| | | Komponentenvideo | BNC x 3, 75 Ohm, Y: 1,0 Vp-p Cb, Cr: ±0,35 Vp-p |
| | | Horizontale Auflösung | NTSC, PAL: 500 TV SECAM: 300 TV |
| | RGB | R.G.B.H.V. | BNC x 5<br>G/Y: 75 Ohm, 0,7 Vp-p / 1,0 Vp-p<br>R, B/Cb, Cr: 75 Ohm, 0,7 Vp-p / ±0,35 Vp-p<br>H/CS, V:1 kOhm TTLo75 Ohm 0,7 bis 2,0Vp-p Wahltyp |
| | | Frequenz | Maximale Abtastfrequenz: 165 MHz<br>Horizontale Frequenz: 31 kHz bis 105 kHz<br>Vertikale Frequenz: 24 Hz bis 96 Hz |
| Bildeingang (Technischen Daten der optionalen Karte) | DVI-D | DVI-D-Anschluss | 1 Eingang, unterstützt Dual Link |
| | | Frequenz | Maximale Pixel-Taktfrequenz: 220 MHz |
| | SDI | Eingangsanschluss | 2 Eingänge<br>SDTV: SMPTE 259M Level C<br>HDTV: SMPTE 292M |
| | | Ausgangsanschluss | 1 Ausgang für Monitor |
| Bildausgang | Auflösung | | 2048 x 1080 P |
| | Ausgangsverfahren | | DVI-D twin link (DVI OUT-A: oberes 8-bits, DVI OUT-B: senken 2-bits) |
| Bildsignalbearbeitung | Bit-Farbtiefe | | 10 Bit für sämtliche Bearbeitungen der einzelnen Farben (außer RGB und DVI Input-Board) |
| | I/P Konversion | | Multidirektionales Filterverfahren (SDTV, HDTV)<br>3:2, 2:2 Pulldown-Signal, kompatibler Typ zum Animationsformat |
| | Geräuschreduzierung | | "Per-pixel motion adaptive"-Verfahren (SDTV) |
| | Verstärker | | Multidirektionales Filterverfahren, Kontraststeigerung |
| Eingangs-Ausgangsanschluss | Eingangsschlitz | | 4 Schlitze (Je eine Karte für den VIDEO-Board und für das analoge RGB-Input-Board gehören zur Standardausstattung; 2 Schlitze dienen der Erweiterung.) |
| | MM-VIDEO (Standardboard) | Videoeingang | BNC x 1 (Komposit-Video) |
| | | | BNC x 2 (S-Video) |
| | | | BNC x 3 (DVD-Komponente) |
| | MM-RGB (Standardboard) | Analoger RGB-Eingang | BNCx5 (gemeinsam mit den Komponenten-Eingangsanschlüssen) |
| | | Audioeingang | RCA (L/MONO, R) x 1 (Keine Funktion) |
| | MM-DVI (Optionales Board) | Digitaler RGB-Eingang | DVI-D x 1 |
| | MM-SDI (Optionales Board) | SDI-Eingang | BNC x 2 |
| | | SDI-Ausgang | BNC x 1 |
| | Ausgangsanschluss | | DVI-D x 2 (DVI OUT-A, DVI OUT-B) |
| | USB-Port | | A Type x1 (Für servicepersonal) |
| | LAN-Port | | RJ-45 x 1 |
| | PC-Steuerung Board | IN | D-Sub 9-polig x 1 (Für servicepersonal) |

| | | |
|---|---|---|
| PC-Karte | | Typ II x 1 (Für servicepersonal) |
| Funktion | Bildumschaltung | Schnelle nahtlose Umschaltung (Funktionserweiterung) |
| | 2-facher Bildschirm-Modus | Bild-in-Bild, Bilder nebeneinander (Funktionserweiterung) |
| | Trapezkorrektur | Vertikale Korrektur (Funktionserweiterung) |
| | Projektor-Anschluss | Verbindungsfunktion durch die PC-Steuerung |
| Umgebung | Betriebstemperatur | 5 bis 35˚C |
| | Luftfeuchtigkeit | 10 bis 85% (Kondensation darf nicht vorhanden sein) |
| Lagerungsumgebung | Lagertemperatur | -10 bis 50˚C |
| | Luftfeuchtigkeit bei Lagerung | 10 bis 85% (Kondensation darf nicht vorhanden sein) |
| Stromversorgung | | 100-240 V AC, 50/60 Hz 0.7-0.3 A |
| Maße | | 482 (W) x 132 (H) x 411 (T) mm (ohne vorstehende Teile) |
| Nettogewicht | | 10 kg |
| Angewandte | | U.S.A<br>UL-Normen (UL 60950-1)<br>Entspricht den FCC-Bestimmungen Klasse A<br>Kanada<br>C-UL-Normen (CSA 60950-1)<br>Entspricht den kanadischen DOC-Bestimmungen Klasse A<br>Australien/Neuseeland<br>Entspricht den AS/NZS CISPR.22-Bestimmungen Klasse A<br>Europa<br>Entspricht den Niederspannungsrichtlinien (EN60950-1, TÜV GS-geprüft)<br>Entspricht der EMC-Richtlinie (EN55022, EN55024, EN61000-3-2, EN61000-3-3)<br>CE |
| Optionale Komponenten | | RGB-Signal Input-Board MM-RGB<br>Videosignal Input-Board MM-VIDEO<br>SDI-Signal Input-Board MM-SDI<br>DVI-Signal Input-Board DVI |

- Die in der oben stehenden Tabelle aufgeführten technischen Daten gelten für den Fall, dass ein Projektor angeschlossen ist.
- Änderung der technischen Daten ohne Ankündigung vorbehalten.
- Funktionserweiterungen beziehen sich darauf, dass sich bestimmte Funktionen durch künftige Aktualisierungen der Software erweitern lassen.

# 6-5. Cabinet Dimensions




Units = mm

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